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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,548	06/24/2003	Shoude Chang	14755-US	7790
23553	7590	11/23/2005	EXAMINER CONNOLLY, PATRICK J	
MARKS & CLERK P.O. BOX 957 STATION B OTTAWA, ON K1P 5S7 CANADA			ART UNIT 2877	PAPER NUMBER

DATE MAILED: 11/23/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/601,548

Applicant(s)

CHANG ET AL.

Examiner

Patrick J. Connolly

Art Unit

2877

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 November 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-22 and 27 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 27 is/are allowed.
- 6) ☒ Claim(s) 1-4, 6-12 and 14-21 is/are rejected.
- 7) ☒ Claim(s) 5, 13 and 22 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 24 June 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11.08.2005
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims rejected under 35 U.S.C. 102(b) as being clearly anticipated by “En-face optical coherence imaging for three-dimensional microscopy” (hereafter Akiba).

As to claims 1, 9 and 19, Akiba discloses a method and apparatus for tomographic imaging including (see page 11):

capturing a non-interference background image of the sample (background intensity, $(1/4) \{I_s(x,y) + I_r(x,y)\}$);

capturing a first interference fringe image ($S_1(x,y)$)

capturing a second interference fringe ($S_2(x,y)$), phase shifted by an amount relative to the first interference fringe image.

computing a tomographic image by mathematical manipulation of the images (see Equations 3-9).

As to claims 2, 10 and 20, Akiba discloses taking the images consecutively, at different times.

As to claims 6, 14 and 15 Akiba discloses scanning the reference arm (see Figures 1, 4 and 6).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims are rejected under 35 U.S.C. 103(a) as being unpatentable over Akiba.

As to claims 3, 4, 11, 12 and 21, Akiba does not show the specific mathematical steps taken to solve the equations so as to obtain the tomographic image.

Mathematical manipulation and derivation of equations is notoriously well known in the art to solve equations and to thereby obtain accurate results from data by said equations.

The Examiner takes Official Notice that it would have been obvious to one of ordinary skill in the art at the time of invention to solve the equations by the claimed methods so as to obtain the tomographic image accurately given the data collected, and the given equations.

As to claims 7, 8, 17 and 18, Akiba does not teach tilting the beamsplitter or including a spatial filter mask.

It is well known in the art to tilt beamsplitters and use spatial filter masks in order to reduce noise in measurements.

The Examiner takes Official Notice of the fact that it would have been obvious to one of ordinary skill in the art at the time of invention to tilt the beamsplitter and employ a spatial filter mask in the interferometer of Akiba so as to further reduce noise in the measurements.

Allowable Subject Matter

Claim 27 allowed.

Claims 5, 13 and 22 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

As to claims 5, 13 and 22, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of tomographic imaging including applying the $F(x,y)$ compensation function with weighting factors and indexing, in combination with the rest of the limitations of claims 5, 13 and 22.

The following is an examiner's statement of reasons for allowance:

As to claim 27, the prior art of record, taken alone or in combination, fails to disclose or render obvious a method of encoding and retrieving information including: providing a substrate having a solid background color; providing a stack of multiple layers on said substrate each having information printed thereon with a transparent ink; and computing a tomographic image by mathematical manipulation of two interference images and a non-interference image of a target layer of said substrate, in combination with the rest of the limitations of claim 27.

"Several facts have been relied upon from the personal knowledge of the examiner about which the examiner took Official Notice. Applicant must seasonably challenge well known statements and statements based on personal knowledge when they are made by the Board of Patent Appeals and Interferences. In re Selmi, 156 F.2d 96, 70 USPQ 197 (CCPA 1946); In re Fischer, 125 F.2d 725, 52 USPQ 473 (CCPA 1942). See also In re Boon, 439 F.2d 724, 169 USPQ 231 (CCPA 1971) (a challenge to the taking of judicial notice must contain adequate information or argument to create on its face a reasonable doubt regarding the circumstances justifying the judicial notice). If applicant does not seasonably traverse the well-known statement during examination, then the object of the well known statement is taken to be admitted prior art. In re Chevenard, 139 F.2d 71, 60 USPQ 239 (CCPA 1943). A seasonable challenge constitutes a demand for evidence made as soon as practicable during prosecution. Thus, applicant is charged with rebutting the well-known statement in the next reply after the Office action in which the well known statement was made."

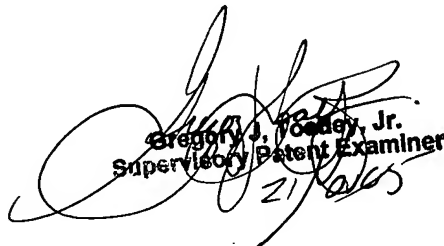
Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Patrick J. Connolly whose telephone number is 571.272.2412. The examiner can normally be reached on 9:00 am - 7:00 pm Monday-Thursday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Gregory J. Toatley, Jr. can be reached on 571.272.2800 ext. 77. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

pjc/pjc
11.16.2005


Gregory J. Toatley, Jr.
Supervisory Patent Examiner
21/2/05